



Device Material Content

5555 NE Moore Ct.
Hillsboro OR 97124 USA
custreq@latticesemi.com

Package: 132 csBGA with SnAgCu Solder Balls
Total Device Weight 0.124 Grams

Copper Bond Wire version

MSL: 3 Peak Reflow Temp: 260°C

December, 2012	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	6.93%	0.0086			Silicon chip	7440-21-3	Die size: 4.71 x 2.90 mm
Mold	56.76%	0.0704	49.38%	0.0612	Silica	60676-86-0	Mold Compound composition: 75 to 95% Fused silica filler (LSC uses 87% in our calculation) 2 to 10% Epoxy resin (LSC uses 5% in our calculation) 2 to 10% Phenol resin (LSC uses 5% in our calculation) 0.5 to 5% Metal hydroxide (LSC uses 2.75% in our calculation) 0.1 to 0.5% Carbon Black (LSC uses 0.25% in our calculation) Mold Compound Density ranges between 1.8 and 2.1 grams/cc
			2.84%	0.0035	Epoxy Resin	-	
			2.84%	0.0035	Phenol Resin	-	
			1.56%	0.0019	Metal Hydroxide	-	
			0.14%	0.00018	Carbon Black	1333-86-4	
D/A Epoxy	1.12%	0.0014	0.90%	0.0011	Silver (Ag)	7440-22-4	Die attach epoxy Density: 4 grams/cc 60 to 90% Silver (LSC uses 80% in our calculation) 10 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
			0.22%	0.0003	Organic esters and resins	-	
Wire	1.44%	0.0018	1.42%	0.00176	Copper	7440-50-8	Pd coated Copper, 0.8 mil diameter 98.5% 1.5%
			0.02%	0.00003	Palladium	7440-05-3	
Solder Balls	11.20%	0.0139	10.70%	0.0133	Tin (Sn)	7440-31-5	Solder ball composition Sn95.5/Ag4/Cu0.5
			0.45%	0.0006	Silver (Ag)	7440-22-4	
			0.06%	0.0001	Copper (Cu)	7440-50-8	
Substrate	13.71%	0.0170	9.32%	0.0116	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			4.39%	0.0054	BT Resins	-	
Foil	8.84%	0.0110			Copper (Cu)	7440-50-8	

Notes:

The values listed above are nominal values based on studies of representatives of this particular package type, and are believed to be as accurate as possible.

Constituent substances and proportions in epoxy materials are before curing.

The information provided above is representative of the package as of the date listed, and is subject to change at any time.

www.latticesemi.com

